

acoustical equipment, the former facilities of these industries have often been reused by service and research-oriented employers.

These trends are expected to continue, if at a more moderate pace, in the coming 10 to 15 years. New employment, whether through start up, expansion, or recruitment will be created primarily in technology-based fields such as through biotechnology and computer or internet related firms.

The Charles riverfront and the open spaces along the Massachusetts Avenue are popular noontime and after work outlets for jogging, walking, eating lunch, and sitting and talking. In addition, the presence of the university and college campuses (most notably Harvard and MIT) and the campus-like setting of certain companies provide significant passive and active recreational opportunities for employees in the city. Some of the workers in Cambridge also utilize the health clubs located throughout the city. Still, usage by employees can significantly strain open space and recreational resources in Cambridge.

SECTION 4 ENVIRONMENTAL INVENTORY & ANALYSIS

A. Geology, Soils and Topography

Cambridge lies entirely within the Boston Basin, a mostly flat, wedge-shaped lowland area sandwiched between hilly terrain and the Atlantic Ocean. Apart from the large-scale geological forces which created the Basin, Cambridge's terrain has been shaped primarily by glacial activity and, recently, by human activity.

Glacial action is responsible for some of Cambridge's most significant topographic features. As it is located within the Basin, Cambridge has no particularly high peaks. Most of the hills in the city are gentle hills, created either by glacial deposition or as a result of glacial outwash. Mt Auburn, for example, is called a "kame": it was formed as sediments collected either in a notch in the ice sheet or along its edge. The steep hill along a portion of the southern edge of Fresh Pond is an ice-contact slope, and was made in a similar way. The hill to the south of Fresh Pond that extends into Belmont and Watertown is called the Fresh Pond Moraine. A moraine is also a hill made of glacial deposits. And Fresh Pond is called a "kettle-hole", a pond created when a buried piece of glacier finally melts.

In western Cambridge, glacial action during the last Ice Ages had a dramatic impact on the terrain. Before the glaciation, a deep valley ran through western Cambridge, directly under present-day Fresh Pond. A river ran through this valley and joined the Charles. Glaciers, however, deposited material in this valley, filling it up to its current elevation. The existence of this valley is evidenced by borings in the Fresh Pond area. Bedrock is reached at 150 feet below sea level underneath Fresh Pond, indicating the bottom of the valley. Borings drilled at sites adjacent to this prehistoric valley reach bedrock at 50 feet or even less.

Throughout the Boston Basin, bedrock is rather deeply buried. In Cambridge, it is generally about 50 feet below the surface, rarely getting much closer; in some areas such as Fresh Pond, it is located considerably deeper. For most kinds of common (that is, small) construction projects, a deep bedrock layer poses no trouble. However, this geological feature is significant for planners of tall buildings, which usually must have foundations supported by bedrock.

Other geological features in Cambridge also may require the use of elaborate construction techniques. For example, Cambridge's flat topography is due not only to its location within the Boston Basin, but also to the fact that much, if not most, of Cambridge consists of fill areas.

All of the Charles River marshes, particularly in Cambridgeport and East Cambridge were filled, as was the Great Swamp surrounding Fresh Pond. While a flat topography may be convenient for construction, fill areas such as these create several potential problems due to structurally unstable deposits and clays and a high water table. Piles driven in these areas must be driven sufficiently deep, through layers of clay and weak organic deposits, in order to reach material upon which a foundation may be supported. While in some cases foundations of buildings of moderate size can be built on top of clays, larger buildings cannot, and piles must be driven all the way through to bedrock.

Another potential problem associated with filled marsh and swamp land is that groundwater lies between the fill layer and bedrock, making groundwater drawdown a concern. In the short-term, drawdown creates problems for construction crews trying to keep their work site dry. A more severe consequence of drawdown may result if a newly constructed building must resort to permanent dewatering to keep its basement dry. By continuously pumping groundwater, the water table in the area is lowered, exposing the support piles of nearby buildings. Exposure to air after prolonged immersion in water severely weakens the piles, undermining the stability of the building it supports. For this reason, Cambridge does not permit permanent dewatering. Potential problems of a high water table, such as the ones just mentioned, need to be considered in pre-construction phases of planning.

In the western parts of Cambridge, a layer of "sensitive clay" underlies the fill. The adjective "sensitive" refers to the peculiar nature of the clay: at first it appears to be stable, but becomes more like quicksand as it is disturbed. Around the turn of the century, the clay was mined extensively in what became the city dump. More recently, the MBTA encountered this material when building the Alewife extension to the Red Line. It forced them to use some unusual construction techniques to prevent the clay walls of the tunnel from collapsing.

According to the most recent U.S. Soil Conservation Service maps, the soil profile of Cambridge consists mostly of patches of Merrimac, Newport, and Scio soil types found mixed in with extensive "urban land" (parking lots, streets, etc.). Udorthents and urban land (disturbed, fill land) constitute the major soil types in the parts of East Cambridge and Cambridgeport that were created by filling in the Charles River and Millers River marshes. None of these soil types pose particularly difficult challenges for assuring proper drainage, especially since Cambridge is served by MWRA sewer connections; private septic systems, used in more rural areas, can only function properly in certain soils. However, siting ballfields and parks on Scio and especially Newport soils may require special construction techniques because of slow infiltration rates. Soils with slow infiltration rates drain water slowly because of the nature of their particles. Scio soils are characterized by a very fine sandy loam/silt loam surface over an only moderately permeable substratum. Newport soils have low permeability due to a silt loam surface covering a firm fine sandy loam with very slow permeability. Merrimac soils, on the other hand, are composed of surface sandy loam over a loose sand and gravel substratum with rapid permeability, and therefore have few developmental limitations.

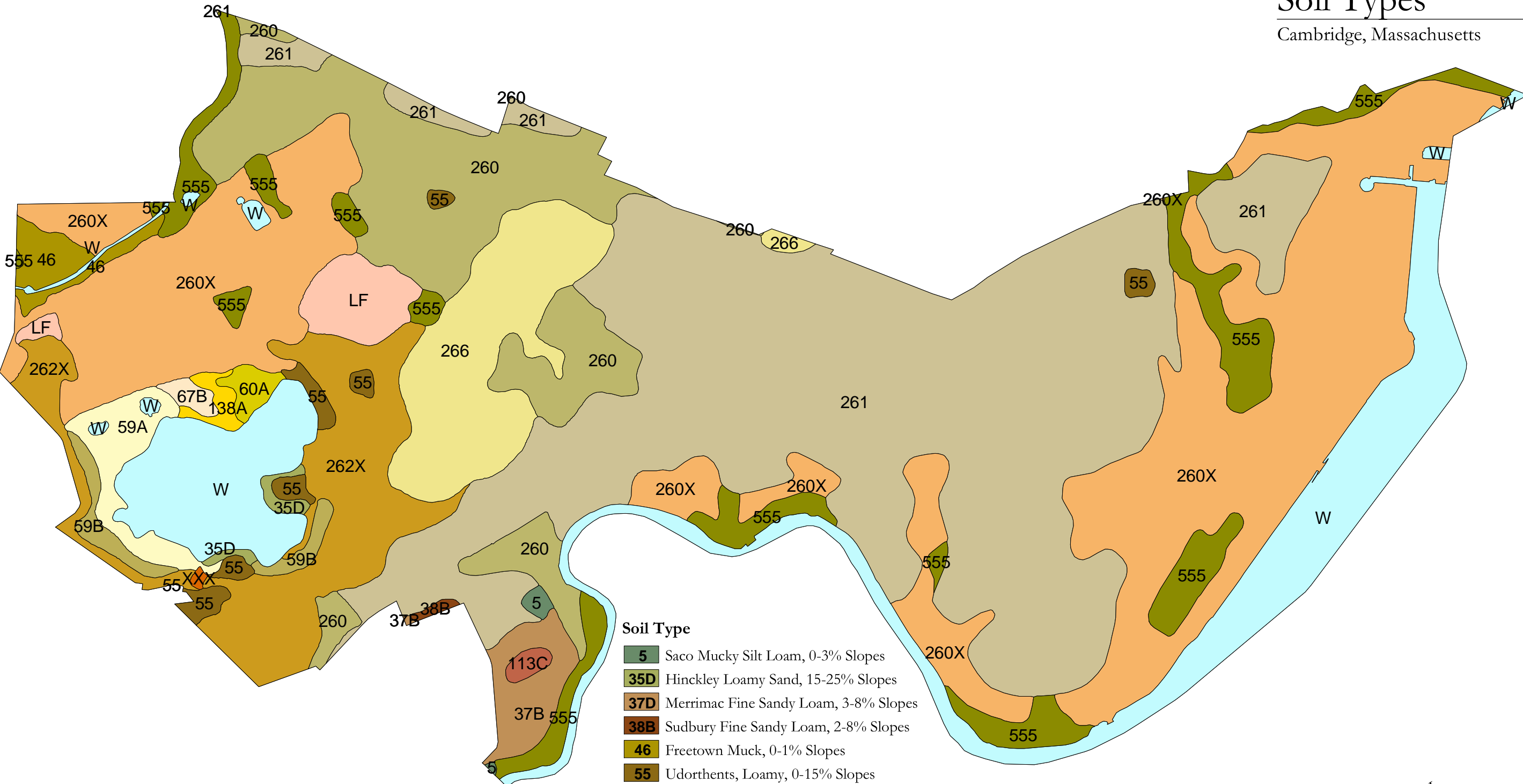
The part of Cambridge with the most severe land use limitations based on soil type is the Alewife area, particularly around Little River. This area is characterized by a soil type called "Freetown muck", an aptly named soil consisting of highly decomposed organic material over sandy or loamy material. This muck is usually wet, has very low permeability, and is usually found in an area where the water table is very close to the surface. It exhibits low strength, and its severe limitations for building necessitate major increases in construction effort, design considerations, and intensive maintenance.

Since all buildings in Cambridge are serviced by MWRA sewer lines and by the Cambridge Water Department, soil characteristics suitable for septic systems or private water wells are not essential. Furthermore, most of the city, with the notable exception of the Alewife area, is situated on soils that drain quickly. The Alewife area, due to periodic flooding and the slow draining of its soils, does pose developmental problems.

The local geology does exert some influence over the height of buildings that may be reasonably planned. Tall buildings cannot be planned without considering the added cost of the special construction techniques required to overcome problems associated with fill land, deep bedrock, unstable clays, and a high water table. Paradoxically, however, these factors do not necessarily lead to a tendency toward shorter buildings. It's not difficult to imagine a sort of threshold building size at which economics become an important factor. Small buildings are relatively inexpensive to build since they require no special construction techniques. However, once a proposed building is planned to be tall enough to require the extra costs of special construction techniques (driving piles to bedrock, dewatering problems, etc) it becomes more economically sound to construct the tallest building that a given foundation, at a given cost, can support.

Soil Types

Cambridge, Massachusetts



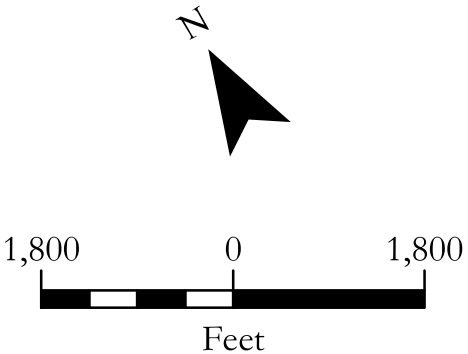
- Soil Type**
- 5 Saco Mucky Silt Loam, 0-3% Slopes
 - 35D Hinckley Loamy Sand, 15-25% Slopes
 - 37D Merrimac Fine Sandy Loam, 3-8% Slopes
 - 38B Sudbury Fine Sandy Loam, 2-8% Slopes
 - 46 Freetown Muck, 0-1% Slopes
 - 55 Udorthents, Loamy, 0-15% Slopes
 - 59A Boxford Silt Loam, 0-3% Slopes
 - 59B Boxford Silt Loam, 3-8% Slopes
 - 60A Scitico Silt Loam, 0-8% Slopes
 - 67B Windsor Loamy Sand, 3-8% Slopes
 - 113C Canton Fine Sandy Loam, 8-15% Slopes
 - 138A Deerfield Loamy Sand, 0-3% Slopes
 - 260 Urban Land
 - 260X Urban Land, Wet Substratum
 - 261 Merrimac-Urban Land Complex, 0-8% Slopes
 - 262X Boxford-Urban Land Complex, 0-8% Slopes
 - 266 Newport-Urban Land Complex, 3-15% Slopes
 - 555 Udorthents, Wet Substratum
 - LF Udorthents, Refuse Substratum
 - W Water
 - XXX Miscoded/Uncertain

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Note on Data Accuracy:

This soils map contains preliminary data and is subject to change.
Map produced August 1, 2003.



B. Landscape Character

Cambridge derives its unique landscape character from a combination of its man-made environment, its natural surroundings and its multi-cultural population. As described in Section 3, Cambridge is a densely developed mosaic of different neighborhoods and land uses that have evolved over the past three and a half centuries. Thus, the city's areas of scenic interest are more deliberately contrived, or possibly historical in nature, rather than untouched natural areas.

Perhaps the premiere example of this is the Charles River Basin comprising 55 acres of parkland (passive and active) and a scenic drive along the riverfront. Built as part of a beautification and flood control project in the early decades of the 20th century, the riverfront provides expansive views of Beacon Hill and the Back Bay in Boston. The Massachusetts Department of Conservation and Recreation (DCR) manages the riverfront, and with the exception of a few boathouses, has not permitted any construction in this area leaving the shores of Charles accessible to the public.

The Fresh Pond Reservation, comprising the larger Fresh Pond and two smaller ponds (Little Fresh Pond and Black's Nook) lends special visual benefits to the city. Because it serves as a holding area for the city's water supply, Fresh Pond is not available for swimming, fishing or skating. However the Reservation offers one of the few heavily wooded areas in the city. Kingsley Point, despite its proximity to Fresh Pond Parkway, offers a remarkably quiet and tranquil view of the pond to the northwest and southwest. Other features of the Reservation include: a nine hole golf course; Lusitania Soccer Field, incorporating one regulation adult and one children's practice field; a two and a half mile jogging path; a small tot lot; a toboggan run; and hills for sledding and cross country skiing in the winter and picnicking in the summer.

The tract of fresh water wetlands at Alewife in the western section of the city is Cambridge's last remaining wilderness resource, yet its location amidst substantial residential and commercial development, highways, railroad tracks, and the Alewife MBTA Station reduces its visual appeal from these vantage points, and threatens its continued value as a natural resource. Nonetheless, considering this setting, a walk or a canoe ride through the Alewife Reservation offer views that are as remarkable as they are unexpected. Within the Reservation, the dense mix of wetland grasses and shrubs and floodplain trees block out surrounding uses and present idyllic views to the nature-lover.

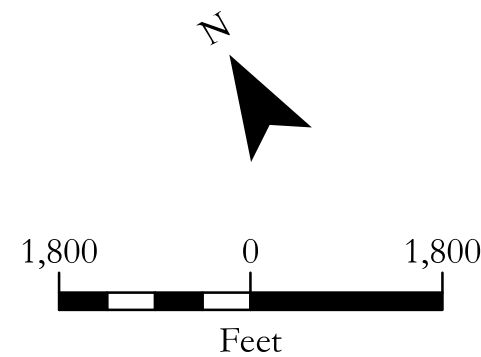
Landscape Character

Cambridge, Massachusetts



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C. Water Resources

Surface water: As part of the City's water supply, Fresh Pond is designated with the "A" classification, which does not permit active recreational use. Instead, Fresh Pond is enjoyed as an amenity enhancing the experience of recreational users of adjacent facilities (e.g. walkers, joggers and bicyclists on the perimeter path, golfers at the municipal golf course, early morning bird watchers and nature enthusiasts) at the Fresh Pond Reservation. Water-dependent recreational uses prevalent elsewhere in the City are restricted at Fresh Pond in order to preserve the water quality of the City's drinking water supply.

The Charles River, bordered by the Department of Conservation and Recreation's extensive riverfront parkland, is already used heavily for sailing, canoeing, and rowing. Its poor water quality as a result of urban runoff and periodic Combined Sewer Overflows does not permit swimming in this section of the River, although fish caught in the river are edible. The river's "B" classification reflects DEP's goal of making the river "fishable and swimmable".

The Alewife Brook/Little River system remains one of the state's most polluted waterways due to urban runoff and Combined Sewer Overflow discharges. While a Class B waterway, it is not currently support its designated fishing and swimming uses. However, the area does have value for secondary contact recreation, such as canoeing. The half-hour long canoe trip from Little Pond in Belmont to the Alewife MBTA Station, through the Alewife reservation, is an enjoyable ride offering surprisingly beautiful scenery. Culverts and bridges downstream of the MBTA station would require numerous portages should one try to canoe down to the Mystic River. Most of the Brook running along the Alewife Parkway shows signs of an artificial, ill-conceived, and ineffective flood control project replacing natural banks with concrete. The remaining wetlands in and beyond the Alewife Reservation provide valuable flood control, pollution attenuation and wildlife habitat functions. The fish population appears to consist of mainly non-native species, mostly carp, with little fishing value. It is hoped that through restoration efforts native fishes will return.

There are numerous small ponds in North Cambridge, including Blair Pond, Perch Pond, and Yates Pond in the DCR's Alewife Reservation; Black's Nook, the North Pond, and Little Fresh Pond at Fresh Pond Reservation; and Jerry's Pond, once a neighborhood swimming hole, now private property, and probably of poor water quality preventing swimming.

Located in the Alewife area, adjacent to the Cambridge Highlands neighborhood is the DCR's Blair Pond, which might be best described as an impoundment of Wellington Brook, and its water level fluctuates dramatically depending on the flow from Wellington Brook. At its deepest, Blair Pond might reach five feet in depth for a brief period after heavy precipitation. In periods of dry weather, most of the pond is less than a foot deep. Wellington Brook leaves Blair Pond through a culvert, then emerges to form the only remaining natural stream in Cambridge. Wellington Brook is not navigable. Yates Pond is at the eastern end of Alewife Reservation, partially blocked off from Alewife Brook by an access road from Route 2 to the Alewife MBTA Station; a small shallow connection exists between them, but is too small to canoe through. The waters of the Alewife Reservation support mostly carp, a species known for its tolerance of degraded waters with low oxygen content. A remnant anadromous fish run still migrates through Alewife Brook; however, only a few hundred blue back herring and alewife now spawn in Little Pond and the Alewife system.

The ponds at Fresh Pond Reservation are all relatively small and shallow. They are also either on, or immediately adjacent to the municipal golf course, and as a result are not safely accessible at all times. They attract fish and wildlife, and are especially critical to the nesting and migratory birds found at Fresh Pond.

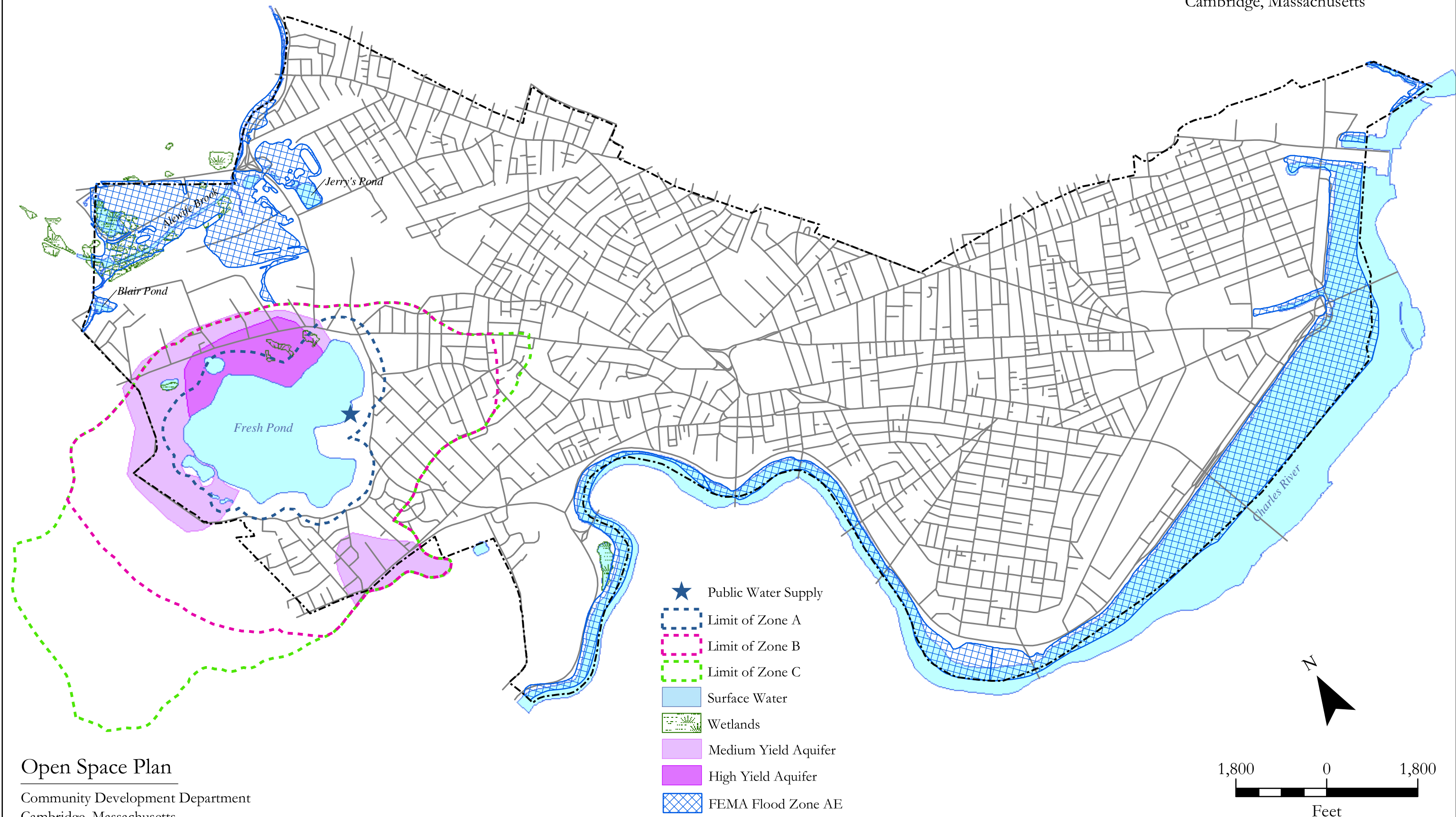
Flood hazard areas: Problem flooding in Cambridge is confined to the Alewife Brook floodplain in Northwest Cambridge. There are three factors responsible for the severe flooding problems along Alewife Brook: 1) Development in the area has increased storm runoff into the Brook and decreased the amount of land available for floodwater retention; 2) Culverts along the Brook have reduced hydraulic capacity; 3) During particularly severe storms (50-year storms and worse), the Mystic River rises high enough to block the mouth of Alewife Brook, causing a reversal in the direction of flow. Clearly, further commercial, residential, or recreational activity in the Alewife area must be sensitive to the flooding problem.

Wetlands: Historically, wetlands covered a significant portion of Cambridge. East Cambridge and Cambridgeport were tidal marshes before they were filled and the Charles River dammed. Most of the city from Fresh Pond to Alewife Brook was also a predominately freshwater marsh which was under tidal influence through the Mystic River system. The wetlands in the Alewife Reservation are the remnants of these marshes. Apart from some privately-owned land in the Alewife area, nearly all wetlands in Cambridge are on publicly-owned land.

Aquifer recharge areas: There are no drinking water wells in Cambridge; the entire city is served by the Cambridge Water Department's distribution system. The quality of this water system has been actively addressed by the Water Department, especially through it's development of the new water treatment plant and the creation of a Fresh Pond Master Plan.

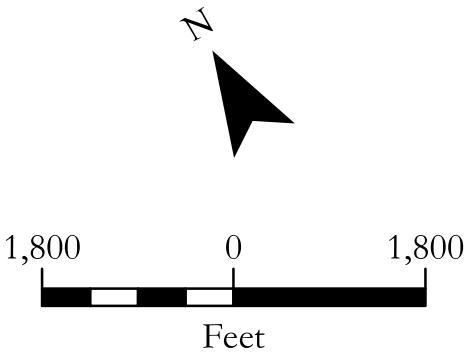
Water Resources

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D. Vegetation

Given the densely developed nature of Cambridge, much of the vegetation is the result of deliberate landscaping efforts over time, namely street trees, city parks and university campuses. The few remaining undeveloped areas are notable exceptions to this.

Street trees are perhaps the most common of the public vegetation found in the city. This urban forest includes all public shade trees throughout the city; the Department of Public Works' Parks and Urban Forestry Division is responsible for its management. The City Arborist chooses trees that are indigenous to the area and can thrive with the soil conditions found in the city. Another criterion is their resistance to pollution. The inventory of street trees includes different varieties of sugar maples, locusts, ash and pears, along with sweet gum, horse chestnut, shadblow, London plane tree, sycamore maples and redwood. The city also has 84 American elm trees in its street tree inventory. Special programs sponsored by Urban Forestry Division related to trees include: Citywide Street Tree Pruning, Client Tree Program, Commemorative Tree Program, Significant Tree Program, Tree Removal and Pruning, Service Requests, and Volunteer Activities.

In most of the city's playgrounds and active parks, vegetation serves a secondary, though important, function. Criteria for choosing these plants also include hardiness and pollution resistance, along with their aesthetic qualities.

There are, however, a number of passive parks that have a number of species not commonly found in the city's open space inventory. Lechmere Canal Park and Charles Park are two areas in particular that contain unusual species. Lechmere Canal Park contains cork trees, witch hazel, summer sweet (*elethra alnifolia*) and shadblow (*amelanchior*.) Among the plantings at Charles Park are a hardy rubber tree, silver bell, two katsura trees, red bud, dawn redwood and kousa dogwood. Centanni Park features outstanding wisteria vines on trellises along with Japanese scholar trees (*sophora japonica*.) These plantings supplement the other trees, shrubs, bulbs, and flowers found in these parks. Mount Auburn Cemetery is nationally known for its inventory of species trees and shrubs. Likewise, the university campuses are areas offering distinctive landscapes and vegetation. Harvard Yard is noted for its stand of American elm trees along with other species.

Of the few remaining natural open areas, Fresh Pond and the Alewife Reservation are the largest and most important in Cambridge. The most popular wooded area in Cambridge is the Fresh Pond Reservation with its deciduous and evergreen forest. The woods are particularly dense along the north and south shores of the pond, buffering it from the surrounding activity and bestowing upon it a quiet pastoral quality. The Reservation is a popular place for jogging, walking, and nature-watching. The vegetation around the pond and in the Reservation's wetland areas contributes greatly to wildlife habitat value, which is particularly important for birds migrating in the spring and fall.

Fresh Pond Reservation is also home to the only known rare species in Cambridge. A botanist with the state Natural Heritage Program observed a population of Cyperus engelmanni, Engelmann's Umbrella-sedge, along the shore of Black's Nook in 1981. This plant is listed by the state as a Species of Special Concern. The current status of this population is not known, although as of October 1986, the Natural Heritage Program assumed it to be still present since they had observed it in other small ponds in the area. Engelmann's Umbrella-sedge is particularly susceptible to changes in water level in Black's Nook, as the plant occupies exposed sandy to peaty margins of the shore. No growth occurs in high water cycles, and seeds

will germinate only on suitable exposed shoreline.

Alewife Reservation is entirely within the 100-year floodplain of the Alewife Brook/Little River system, and is primarily made up of swamps and marshes. The common reed, *Phragmites*, is the most abundant wetland plant here; the dominance of this non-native, aggressive species is another indication of the disturbed nature of this ecosystem. Most of the other plants at Alewife are either strictly wetlands species, or species that can tolerate wet soils.

E. Fisheries and Wildlife

Natural ecosystems, with full complements of animals and plants, require larger and less disturbed tracts of wilderness than exist in Cambridge. Nevertheless, there are three areas in Cambridge that do provide suitable habitat to fish, birds, and other animals: the Charles River, Fresh Pond Reservation, and the Alewife system.

The Charles River

The Charles River has been designated as a class B waterway, with the goal of making the river "fishable and swimmable". The Charles is the site of a significant alewife and blue-back herring anadromous fish run, in addition to smaller smelt and shad runs. The river and its inhabitants remain affected by Combined Sewer Overflow discharges, urban runoff, and upstream pollution, but conditions have improved in recent years and are expected to continue to improve. The DCR's Master Plan for the Charles River Basin will hopefully provide a blueprint for these improvements.

The only remaining wilderness area along the Cambridge portion of the Charles is the Hell's Half Acre, or Gerry's Landing, site, near the Watertown line. The potential wildlife habitat value of this area is high because of its variety of wetland types, dense vegetation, and proximity to the river. However, its small size and isolation from other wilderness areas has the effect of decreasing the wildlife activity here. Despite the paucity of species, this area has value as a nature-watching area. Red-winged blackbirds, for example, exhibit fascinating, yet easily observable, territorial behavior that even amateur bird watchers can enjoy. And the dense stands of berries that attract birds are delicious to the human palate as well.

In a show of support for the rehabilitation of the Charles River shoreline, the City entered into a joint management with the MDC (now DCR) to fund major renovations to Magazine Beach. This renovation will be carried out in phases, and will address the quality of the fields, shoreline, and overall landscaping. In exchange for funding these renovations, the City will receive priority scheduling for athletic fields.

Fresh Pond and Alewife Reservations

Most of the wildlife habitat in Cambridge is concentrated in northern and western Cambridge, around Fresh Pond and at the Alewife Reservation. The combination of open water, dense vegetation, and food fulfills habitat and food requirements of many birds. These areas are important stops along migratory routes for over one hundred bird species.

The variety of landscape features found in the Fresh Pond Reservation provide excellent wildlife habitat. While the ponds at the Reservation harbor muskrats, turtles, and frogs, and raccoons and skunks presumably inhabit its woods, Fresh Pond is most important for its support of numerous species of birds. The presence of several scattered ponds, dense brush, and forested areas in combination result in a complex topography that is well-suited to the feeding and nesting habits of a variety of bird species. The abundance of food items, such as

weeds, berries, and other vegetation, insects, and fish and amphibians, also adds to the importance of Fresh Pond as bird habitat.

Alewife Reservation provides a relatively large, contiguous stretch of potential habitat for wildlife. Ideally, the Reservation could support a diverse assemblage of birds and other animals, with the Little River running through it and several ponds (Blair and Perch Ponds in Cambridge; Little Pond in Belmont) and many acres of woodland and wetland within its limits. However, the poor condition of this habitat limits the types of animals within its boundaries. Hopefully the DCR's master planning effort for Alewife will improve this area.

F. Scenic Resources and Unique Environments

SCENIC LANDSCAPES

As described in Section 4 Part B, many of Cambridge's landscapes are mostly man-made and/or historical in nature, rather than untouched natural areas. Chief among these is the 55-acre Charles River Basin including the award winning East Cambridge Riverfront redevelopment area, the Massachusetts Institute of Technology campus, and the River Houses of Harvard University. Mount Auburn Cemetery (partly in Cambridge) was the first garden cemetery to open in the United States during the 1830s. Its winding paths and the extensive plantings of different species of trees and shrubs make it one of the most beautiful landscapes in the Boston metropolitan area. Hundreds of bird watchers go there, especially during the spring migrations.

Fresh Pond Reservation with its views from Kingsley Point (described in Section 4 Part B) provides one of the few unspoiled views in the city. Likewise, the interior of the Alewife district is another substantially unchanged area. The portion of Wellington Brook between Blair and Perch ponds is the last remaining natural stream in the city (please refer back to Section 4 Part B.)

The city protects its scenic resources through a variety of measures including an open space zoning district, several different historic preservation designations, and Conservation Commission review of wetlands and filled tidal areas.

CULTURAL AND HISTORIC AREAS

Cambridge has one of the most comprehensive historic preservation programs in the Commonwealth of Massachusetts. Because several of the city's open spaces have some historical associations, a number of them are protected through preservation measures. Of the several different designations the city uses, the most widely used is National Register status. Examples of open space protected through the National Register is the Charles River Basin, Fort Washington, Longfellow Park and portions of the Harvard University campus. Under the National Register, the State Historic Preservation Officer must approve any projects using federal funds to insure proper treatment of the properties. The city also uses local historic district and local landmark designations to provide additional protection to historical open spaces. Under these ordinances, no change can take place without the approval of the Cambridge Historical Commission. Cambridge open spaces with these designations include Fort Washington and the gates of Mount Auburn Cemetery respectively.

Mount Auburn Cemetery is protected, in large part, by its judiciously invested perpetual care fund. This privately owned cemetery has a continuous flow of funds necessary for the upkeep and enhancement of its historic grounds. In addition to its local landmark status, the Cemetery is a National Landmark.

Cambridge, with its interlocking villages, has a vast wealth of historic areas and sites each one with its own distinct character. Currently, the city has over 2,000 listings on the National Register of Historic Places (of which ten percent are individual listings and the remainder in districts,) two local historical districts and 13 local landmarks, and two neighborhood conservation districts. The neighborhood conservation districts are unique to Cambridge, authorized by a home rule petition passed by the state legislature in 1983. The sites and districts protected by these mechanisms tell the story of the city's history, including its industrial past, academic institutions, commercial centers, and array of different residential neighborhoods.

Cambridge was a summering location for Native Americans prior to European settlement and for some time afterwards. This along with the early 17th century European settlement indicates the possible existence of archeological sites. However, none have been registered with the Massachusetts Historical Commission, and the substantial amount of filling that has taken place along the Charles riverfront could mean that many sites have been destroyed in the course of the city's development.

STATE IDENTIFIED AREAS OF CRITICAL ENVIRONMENTAL CONCERN

Because of the vast amount of industry in Cambridge in the 19th and 20th century, many of the nonresidential areas of the city require environmental analysis as a part of any redevelopment. However, there are a few areas within the city that are of special environmental concern.

Alewife District: The Alewife district consists of several hundred acres of sensitive ecological marshlands entirely within the 100 year floodplain of the Alewife Brook. It has suffered environmental degradation over time because of its industrial past (specialty steel, chemicals, and brickmaking) and, more recently, because of insensitive commercial development. It is also subject to urban storm water runoff from Cambridge, as well as from the neighboring towns of Belmont and Arlington. The Alewife Brook/Little River system remains one of the state's most polluted waterways, and currently does not support its designated uses of fishing and swimming.

The City's previous master plan for the area, entitled Alewife: A Plan for Sustainable Development (1995), proposed three goals to protect and upgrade the existing environmental resources, expand the open space network, and create a safer environment for people. At least one of the plan's recommendations-- that the MDC (now DCR) develop a master plan for the Reservation-- is currently being pursued. The Community Development Department is also in the process of beginning a new planning study for the Alewife area, to account for the changes that have taken place since the previous master plan was put forth.

Charles River: has a "B" classification; its poor water quality is a result of urban runoff and periodic combined sewer overflows. City's sewer separation effort and the Massachusetts Water Resources Authority Combined Sewer Overflow (CSO) improvements will help in achieving the Department of Environmental Protection's goal of making the river fishable and swimmable. However, significant non-point sources of pollution from Cambridge, Boston, and particularly from upstream communities, must be addressed to make further progress in restoring the Charles River.

G. Environmental Challenges

HAZARDOUS WASTE SITES

There are over 100 hazardous waste sites in the city, primarily in the nonresidential sections, and primarily due to industrial uses in the past. The Water Department and the Environmental Program have completed an inventory of the sites; the Water Department monitors the clean up of the sites near Fresh Pond.

LANDFILLS

There are currently no active landfills in Cambridge; however, the City had one landfill that was active from 1955 to 1970. It is now Danehy Park. Some other earlier landfills existed in what is today an industrial area within Alewife.

EROSION

See "Ground and surface water pollution", below.

CHRONIC FLOODING

Flooding continues to be a problem in North Cambridge due to inadequate flood storage of the Alewife Brook system. Development in this area has worsened this problem. (See "Flood hazard areas" in Water Resources section).

SEDIMENTATION

See "Ground and surface water pollution", below.

DEVELOPMENT IMPACT

Office development in the Alewife floodplain, combined with the area's past industrial uses, has increased storm water runoff and depleted the flood storage capacity of the system. In other evolving industrial areas, such as East Cambridge and Cambridgeport, the City is seeking to protect, and even repair, the environment through implementation of the Growth Policies in considering development plans, review, and zoning tools.

GROUND AND SURFACE WATER POLLUTION

During storms, the Charles River and Alewife Brook receive sewage discharges through Combined Sewer Overflows located along these rivers at several points in Cambridge. Measures already implemented by the MWRA have decreased the number of CSO events.

Non-point source pollution is now acknowledged to be a significant yet more intractable water pollution problem. Road and lawn runoff entering storm drains contain heavy metals and excess nutrients and cause sedimentation in the Charles and Alewife Brook. The problem is particularly severe in the Alewife Brook/Little River system. Blair Pond is fed by Wellington Brook, which flows through a culvert from Claypit Pond in Belmont. Over 75 percent of Belmont's storm water runoff enters Claypit Pond, and is therefore passed on to the Alewife system via Blair Pond. Blair Pond itself is undergoing human-caused eutrophication at a rapid pace. While natural eutrophication is a slow process whereby ponds may tend to fill in and eventually change into marshes, human-caused eutrophication proceeds at an unnaturally high rate due to contributions of sedimentation and pollutants from human activity. In the Little River and Alewife Brook, the lack of healthy aquatic vegetation that provides food and cover for fish and other animals, and the overabundance of carp in these waters, are among the signs